Splenic injury – AAST grading

The American Association for Surgery in Trauma (AAST) splenic injury grading system is the most commonly used imaging system for trauma of the spleen. The main factors affecting the grade include the location and size of injury, and the presence or absence of vascular injury or active bleeding. Hence a dual phase CT (arterial and portal venous) is required for accurate parenchymal and vascular assessment. The grading system has operative and pathologic correlation and the most recent revision in 2018 has provided greater clarity on the description of vascular injury.

Imaging grading system

Grade 1 (figure 1)	• Subcapsular hematoma <10% surface area • Parenchymal laceration <1 cm depth • Capsular tear
Grade 2	• Subcapsular hematoma 10–50% surface area; intraparenchymal hematoma <5 cm • Parenchymal laceration 1–3 cm
Grade 3 (figure 2)	• Subcapsular hematoma >50% surface area; ruptured subcapsular or intraparenchymal hematoma ≥5 cm • Parenchymal laceration >3 cm depth
Grade 4	• Any injury in the presence of a splenic vascular injury or active bleeding confined within splenic capsule • Parenchymal laceration involving segmental or hilar vessels producing >25% devascularization
Grade 5 (figure 3)	• Any injury in the presence of splenic vascular injury with active bleeding extending beyond the spleen into the peritoneum • Shattered spleen

Important points

- For multiple injuries, advance one grade for each up to grade 3.
- Vascular injury is defined as a pseudoaneurysm or arteriovenous fistula.
- Vascular injury appears as a focal collection of vascular contrast that decreases in attenuation with delayed imaging.
- Active bleeding from a vascular injury presents as focal or diffuse vascular contrast that increases in size or attenuation in delayed phase.

References

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